

Males. In pupal testes of *Brahmaea japonica* very few mitoses are present probably because the spermatogonial increase occurs in the last two instar larvae. The found C-metaphases show 94 chromosomes; they are rod- and dot-shaped and range from about 0.6  $\mu\text{m}$  to about 2  $\mu\text{m}$  (fig. 3). At the prophase of the first meiotic division 47 bivalents are visible (fig. 2).

Females. Ovarioles still show oogonial mitoses and the start of meiosis. Fifty mitotic C-metaphases of three specimens were scored for chromosome number: five metaphase plates present  $2n = 93$ , forty-three  $2n = 94$ , and two  $2n = 95$ . The chromosomes are rod- and dot-shaped and their length ranges from about 0.7  $\mu\text{m}$  to about 1.5  $\mu\text{m}$  (fig. 5). Some prophases of the first meiotic division with 47 bivalents were observed; they consist of parallelly aligned homologues showing their achiasmatic nature (fig. 4), as already reported in other Lepidoptera (Suomalainen, 1965: Chromosoma (Berlin), 16: 166-184; White, 1973: Cambridge Univ. Press).

With regard to the sex chromosome mechanism, the same chromosome number found in both males and females excludes an XO system and indicates an XY system, even though the sex chromosomes are undetectable in our preparations.

The only karyologically studied Brahmaeidae species, to our knowledge, are *Acanthobrahmaea europaea* ( $n = 32$ ;  $2n = 64$ ) and *Brahmaea japonica* ( $n = 47$ ;  $2n = 94$ ). The two species are very different in size and wing features, moreover they occur at the extremities of the euroasiatic region. Given the chromosome number  $2n = 94$  of *B. japonica*, it could be supposed that *B. japonica* presents a quasi-polyploidy ( $3n - 1$ ) in relation to *A. europaea*. But two facts are contrary to this hypothesis: 1, the chromosomes of *A. europaea* are clearly larger than those of *B. japonica*; and 2, the genome of the two species is about the same size. We think that the variable chromosome numbers in Brahmaeidae are probably due to chromosomal rearrangements (fusion and dissociations), as already reported in other non-parthenogenetic Lepidoptera (Robinson, 1971: Pergamon Press, Oxford; White, 1973: Ibid.).

At a future time it would be valuable to examine the DNA content of both species and the chromosome complements of some other Brahmaeidae.

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### Revisional notes on the Genus *Satarupa* Moore (Lepidoptera: Hesperiiidae). I. New Synonyms of *Satarupa monbeigi* Oberthür.

*Satarupa monbeigi* Oberthür, 1921:76, pl. Y, Y bis.

= *Satarupa omeia* Okano, 1982:91-94, Pl. 1, figs. 1, 2 male; fig. 1, male genitalia (**Syn. nov.**)

= *Satarupa lii* Okano and Okano, 1984:124-126, Pl. 9, figs. 1, 2 male; figs. A, male genitalia (**Syn. nov.**)

In 1982, Okano described *Satarupa omeia* from Omeishan, Sichuan, Peoples Republic of China, as a new species. Two years later he described another "new" species, *Satarupa lii* (Okano and Okano, 1984), from exactly the same locality.

We consider both of Okano's two species conspecific with *Satarupa monbeigi* Oberthür, 1921, for the following reasons.

Four described taxa of *Satarupa*, namely *S. valentini* Oberthür, 1921, *S. zulla owrardi* Oberthür, 1921, *S. nymphalis khamensis* Alphéraky, 1897 (= *oberthueri* Evans, 1932, = *intermedia* Evans, 1932) and *S. monbeigi* Oberthür, 1921, have hitherto been known from West China (Evans, 1949). Okano should have compared his two species with these four known species, but he neglected to do so. Even if he had no opportunity to examine these species himself or through authoritative persons, he should, at least have keyed his specimens using Evans (1949). Instead, he compared his "new" species with *S. formosibia* Strand, 1927, from Taiwan. In the descriptions he mentioned that *S. omeia* "most closely resemble[d] *S. formosibia* Strand in almost similar appearance", and that *S. lii* was "very near to *Satarupa formosibia* Strand from Formosa". However, he did not mention that *S. formosibia* was the closest species that he compared with those two species among the genus *Satarupa*. Our revisional work (unpublished) suggests that *S. formosibia* is abnormal within this genus in wing markings and male genitalia. Moreover, he did not refer to his own first paper (*S. omeia*) in his second paper (*S. lii*).

We examined two males from the same locality (Omeishan, Sichuan), and determined that those were *S. monbeigi* and so were Okano's two species (based on his figures). In figure 2 of both descriptions, the inner dot in space 7 on the ventral side of the hindwing is vestigial, but still present. Within *Satarupa* the presence of this dot separate the group of species which includes *S. monbeigi* from the group which includes *S. formosibia*. Male genitalia of *S. omeia* and *S. lii* appear slightly different in Okano's figures, especially on the tip of the harpe and the curve of the style. However, these difference appear to be either individual variations or artificial (subjective) modifications of the figures. Figures should be drawn carefully, with sufficient understanding of the structures, rather than rough sketching (Kawazoé, 1973).

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